

CHAPTER 14 – Preparation of Project Plans

Table of Content

CHAPTER 14 – Preparation of Project Plans	14-3
SECTION 1 General.....	14-3
Design Phase.....	14-3
Laws.....	14-3
Initiate Final Project Design	14-4
Construction Contract Standards	14-4
SECTION 2 Preliminary Plans.....	14-5
ARTICLE 1 General.....	14-5
Request Additional Data.....	14-6
Identify the Ready to List Constraints Applicable to the Project	14-7
Other Considerations	14-7
Experimental Features	14-8
ARTICLE 2 Geometric Base Maps.....	14-9
Development of Geometric Base Maps.....	14-9
Review by Functional Units	14-9
Review by External Agencies.....	14-9
Design Approvals	14-10
ARTICLE 3 Cross-sections.....	14-10
ARTICLE 4 Bridge Site Data Submittal.....	14-11
Prepare Site Plans	14-11
Structure Preliminary Report.....	14-12
ARTICLE 5 Right-of-Way Submittal	14-12
Determine Right-of-Way Requirements.....	14-12
Send Maps to Right-of-Way.....	14-12
Prepare Appraisal Maps.....	14-12
Certificate of Sufficiency.....	14-13
Initiate Right-of-Way Appraisals	14-13
ARTICLE 6 Skeleton Layouts	14-13
Circulate Skeleton Layouts.....	14-13
Typical Cross-Sections	14-13
SECTION 3 Final Plans	14-14
ARTICLE 1 General.....	14-14
Conduct Detailed Project Design.....	14-14
Special Considerations.....	14-14

ARTICLE 2	Final Maps to Right-of-Way	14-14
	Final Right-of-Way Requirements	14-14
	Acquisition and Clearance	14-15
	Condemnation Procedures	14-15
ARTICLE 3	Bridge General Plans	14-15
	Bridge General Plans	14-15
	Falsework Approval.....	14-15
	Development of Bridge Plans, Specifications, and Estimate	14-16
ARTICLE 4	The Project Plans	14-16
	Plans Prepared by Project Engineer.....	14-16
	Plans Prepared by Functional Units.....	14-16
ARTICLE 5	Final Quantities	14-17
	Quantity Calculations	14-17
	Unit Price Analysis	14-17
SECTION 4	Plans, Specifications, and Estimate Submittal.....	14-18
ARTICLE 1	General.....	14-18
	Complete Project Design	14-18
	Review for Current Standards	14-18
	Use of Standard Plans	14-18
	Local Agency Review.....	14-19
	Federal Highway Administration Review	14-19
	Safety Review	14-19
	Constructability Review	14-19
	Review for New or Revised Standards.....	14-19
	Funds Request.....	14-20
ARTICLE 2	Environmental Reevaluation	14-20
	Environmental Reevaluation Process	14-20
	Permits	14-20
	Mitigation	14-21
ARTICLE 3	Right-of-Way Certification.....	14-21
	Request Right-of-Way Certification.....	14-21
	Types of Certification	14-21
ARTICLE 4	Preparation of Contract Documents	14-22
	Submittal to District Office Engineer	14-22
	Exception to Delivery of Cross-sections at Ready to List.....	14-23
	Submittal to Headquarters Office Engineer.....	14-24

CHAPTER 14 – Preparation of Project Plans

SECTION 1 General

Design Phase

The design phase spans the project development process from the development of preliminary plans through the submittal of contract documents for advertisement.

The contract documents consist of the following:

- Plans, specifications, and estimate (PS&E).
- Supplemental project information which is relevant to the project and made available to bidders.

Laws

California Public Contract Code, Section 10120 requires that Caltrans prepare full, complete, and accurate plans and specifications and estimates of cost before entering into a contract for a project. In addition, the Supreme Court's Spearin Doctrine requires Caltrans, as the owner-operator, to give an implied warranty that the plans and specifications will be adequate to carry out the project if the contractor complies with the plans and specifications. Consequently, the construction project must comply with Caltrans' right-of-way, environmental, design, and the Federal Highway Administration's (FHWA) standards. Advertisement of a construction project is constrained until these requirements are met. See [Chapter 8](#) – Overview of Project Development for an overview of the project issues that may create an advertising constraint. For a comprehensive list of which requirements must be met before a project is advertised, see the [Ready to List and Construction Contract Award Guide \(RTL Guide\)](#).

Initiate Final Project Design

Final project design is initiated by obtaining a 1-phase (design) expenditure authorization (EA) at project approval.

Final design: Any design activities following preliminary design and expressly includes the preparation of final construction plans and detailed specifications for the performance of construction work.

Construction Contract Standards

To ensure that the project engineer (PE), as the engineer of record for the contract, complies with the law and court decisions, Caltrans developed the following construction contract standards:

- Standard Specifications.
- Standard Special Provisions.
- Standard Plans.

The PE shall use standard special provisions (SSPs) and standard plans in the contract documents. If, after consultation with the district office engineer unit, it is determined that a specific standard special provision or standard plan is not appropriate, the PE and the district office engineer shall move forward with the process for approval of a modification which can be found in the [Ready to List and Construction Contract Award Guide \(RTL Guide\)](#). See the [Plans Preparation Manual](#) on the use of modified standard plans.

SECTION 2 Preliminary Plans

ARTICLE 1 General

The main activities in producing a preliminary set of plans are the completion of geometric base maps, the submittal of structure site data, the submittal of maps to the right-of-way unit, and the circulation of skeleton layouts.

To fully comply with the *California Professional Engineers Act (California Business and Professions Code, Section 6700 through Section 6799)*, all engineering plans, calculations, specifications, and reports shall be prepared by, or under the responsible charge of, a licensed engineer and shall include his or her name and license number. Interim engineering documents shall include a notation as to the intended purpose of the engineering document, such as “preliminary,” “not for construction,” “for plan check only,” or “for review only.” All engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping.

The project engineer’s responsibilities during the design process include the following:

- Prepare quality plans that meet Caltrans standards, practices, and policies.
- Prepare project cost estimates and monitor costs to keep the project within budget.
- Develop cross-sections.
- Utilize available resources to maintain project schedules.
- Monitor the project scope to ensure consistency with previous approvals.
- Inform the project manager (PM) of any cost, scope, or schedule changes that may be required for the project.

Revisions to the scope, schedule, or cost of a project require a program change request. If the change in scope is significant, a supplemental project report and an environmental reassessment may be needed. The project plans must otherwise be consistent with the project description identified during the environmental studies.

Request Additional Data

Project design requires the continuous review and update of data. Examples of information that should be obtained for the development of preliminary plans are listed as follows:

- **Mapping and Surveys Data**
With input from the functional units, the PE requests the district surveys unit to conduct any field surveys required to accomplish the design of the project. The district surveys unit is also responsible for coordinating with the Headquarters Division of Engineering Services-Structure Design Office of Photogrammetry and Preliminary Investigations to provide any required topographic mapping.
- **Materials Report**
The materials report is prepared by the district materials unit to determine pavement structural sections and to recommend slopes for excavation and embankment. Concurrence should be obtained from local agencies for the design of structural sections on local streets and roads. Topics discussed in the report may also include slope stability, seismic considerations, availability of materials, and other related information.
- **Drainage Report**
The drainage report is usually prepared by the hydraulics unit to establish basic drainage requirements and to allow for the early design of box culverts, sanitary sewers, cross drainage, and other drainage facilities. Drainage designs should be reviewed by the maintenance unit and local agencies as appropriate.
- **Traffic Data**
Updated traffic projections and design designations should be requested from the planning unit. These are used to verify that the capacity and other operational characteristics of the proposed improvements are adequate for the design year. Traffic volumes are also required to calculate the equivalent single-axle load (ESAL) and traffic index, which both determine the design of the pavement structural section.

Identify the Ready to List Constraints Applicable to the Project

Identify and begin the process for clearing Ready to List (RTL) constraints at the beginning of this phase. Some issues must be resolved in order to provide the information necessary to develop the contract documents. Some issues have long lead times for resolution and must begin well in advance of the RTL milestone.

Examples of RTL constraints are:

- Impact mitigation for historical structures and biological features.
- The project information on foundation investigations, retaining walls, and noise barriers.
- Cooperative agreement for construction oversight.
- Hazardous waste.
- Permits.
- Railroad agreements.
- Freeway agreements with local agencies.
- California Transportation Commission (CTC) route adoptions or CTC consent to new public road connections.
- Sole source or proprietary items.
- Nonstandard special provisions or plans approval.

Other Considerations

During the initial stages of the project design process, various project scope and project-related activities should be initiated and monitored. Examples of areas to consider include:

- Relinquishment and abandonment procedures.
- Maintenance agreements for responsibility after construction.
- Transit and rail facilities.
- Recycling should be incorporated into the project whenever appropriate; available hardware may be found in the statewide inventory of salvaged highway hardware. In addition, all contracts should identify highway hardware and other material that has the potential for reuse or salvage, rather than disposal.

Experimental Features

The PE may be requested to use an experimental feature on the project. This request could come from within or from outside of Caltrans, or it may come about through the initiative of the PE. A feature is generally considered experimental whenever it is a non-standard item or process, or a proprietary item is specified. For the Federal Highway Administration to participate in the cost of the experimental feature, they must approve a work plan describing the experimental feature and illustrating how Caltrans will construct it and evaluate its performance under the Construction Evaluated Program. The Construction Evaluated Program's intent is to field test the constructability and performance of promising new products, techniques, and methods relating to highway facilities. For additional information on the Construction Evaluated Program, see the Construction Evaluated Program Guidelines at www.dot.ca.gov/hq/oppd/guidance.htm.

To obtain federal approval for an experimental feature to be included as a contract item, a finalized work plan should be submitted to the Headquarters Division of Design, Office of CTC Highway Appearances, Encroachment Exceptions, and Resource Conservation a minimum of four weeks prior to project advertisement. Since site suitability is often a key factor, agreement with the Headquarters unit responsible for that functional area should be obtained prior to submittal. Although not the preferred method, an experimental feature can be included as a “contract change order” on an ongoing contract.

If a proprietary item is involved, approval must be obtained from the District Director; all requests on structure items must be approved by the Chief, Headquarters Division of Engineering Services. Copies of the approval letters must be attached to the work plan when submitted to the Headquarters Division of Design; Attention: Office of CTC Highway Appearances, Highway Encroachments and Resource Conservation - Proprietary Item Work Plan. Refer to Index 110.10 of the [Highway Design Manual](#) for further information.

ARTICLE 2 Geometric Base Maps

Development of Geometric Base Maps

A preferred alternative was selected during the project approval process and must now be refined to produce geometric base maps, typical sections, and profiles. Preferably, the development of alternatives was performed using controlled aerial mapping, which can easily be transformed into geometric base maps.

For some projects, as-built plans or photo mosaics may be sufficient. The geometric base maps must show existing topography and proposed engineering features. Accurate mapping is needed for all subsequent design activities, such as determining right-of-way needs, designing drainage facilities, developing traffic plans, etc.

While preparing the base maps, it is appropriate to update the strip map developed during earlier project studies. The strip map is distributed as an attachment to requests for project data and other correspondence.

Review by Functional Units

Geometric base maps should be sent to appropriate functional units to identify problems that are easier to correct at early stages of design and to establish a foundation for skeleton layouts. Comments from maintenance, hydraulics, landscape architecture, structures (to determine railroad involvement and easement requirements), and traffic operations are particularly useful.

Review by External Agencies

Contacts with external organizations were initiated earlier in the project development process; these relationships should be maintained throughout the design process. Local agencies should be allowed an opportunity to review the geometric base maps and to comment on the design of frontage roads, intersections, and other local facilities.

Coordination should also be maintained with any affected agencies that issue permits, such as the California State Lands Commission, United States Coast Guard, State and local reclamation boards, California Department of Fish and Wildlife, California regional water quality control boards, U.S. Army Corps of Engineers, California Department of Parks and Recreation, etc. To facilitate the permit process, these

agencies should be encouraged to perform an early review of the geometric base maps.

Design Approvals

The determination of final vertical and horizontal alignment is necessary for the completion of geometric base maps. At this stage, interchange and intersection details have also been established, and all preliminary geometrics should be reviewed by the PM prior to finalizing the maps. Comments on the geometric base maps should be requested from the Headquarters Project Delivery Coordinator. If additional exceptions to design standards are needed, approval must be obtained according to the procedures in [Chapter 21](#) – Exceptions to Design Standards. For projects on the Interstate System with construction costs exceeding \$1 million and for projects involving special structures as defined in [Chapter 2](#) – Roles and Responsibilities, a review of the geometric base maps and the preliminary design should also be requested from the FHWA liaison engineer.

ARTICLE 3 Cross-sections

Earthwork cross-sections are a vital component in the development and construction of many projects. Cross-sections are necessary throughout the development of a project.

Cross-sections

- Assist the designer in developing the most efficient way to handle the earthwork items.
- Assist the bidder in understanding the scope of earthwork to be performed.
- Are used by district survey units, district construction units, and the contractor to construct the project as designed.

Cross-sections shall be developed for all projects, regardless of sponsor, that include items for roadway excavation or imported borrow except for the following:

- Projects that are exclusively resurfacing.
- Projects that are exclusively highway planting.
- Projects that are exclusively building construction with no improvements to parking or heavy equipment storage facilities. (No roadway construction.)
- Projects where minimal or no grading is required, as determined during reviews with surveys and construction, such that sufficient information is

contained in typical cross-sections, profile grade, contour grading and/or other plan sheets, or that the average-end area calculations are not to be used for payment purposes.

For projects that have earthwork and where cross-sections do not improve the constructability of the project, an exception to the requirement for cross-sections preparation may be obtained. The exception process is as follows:

The decision to not prepare cross-sections shall be made as early as possible. The Deputy District Director's for construction and surveys must concur with this decision in writing.

The District Director shall approve project-specific exceptions to this cross-section preparation policy. This authority may be delegated not lower than the Deputy District Director for Design.

A memorandum stating the reason(s) and justification(s) for not preparing cross-sections must be included in the PS&E submittal package in order to certify the RTL milestone. The memorandum shall include the signatures of district construction and district survey representatives indicating their concurrence.

For additional information about cross-sections, refer to [CADD Users Manual](#).

ARTICLE 4 Bridge Site Data Submittal

Prepare Site Plans

The Headquarters Division of Engineering Services-Structure Design is responsible for the design of all bridges, pumping plants, pedestrian structures, and nonstandard retaining walls, noise barriers, culverts, and other highway- and transit-related structures. A site plan must be prepared for each structure and submitted to Structure Design using a standardized format. The site plans should include survey base lines, alignments, profiles, typical cross-sections, benchmarks, proposed geometrics, and topography. The submittal is not considered complete until all data is supplied accurately. Instructions for completing the bridge site data submittal can be found at: <http://www.dot.ca.gov/hq/esc/pi/>

Structure Preliminary Report

After receiving the bridge site data submittal, Headquarters Division of Engineering Services-Structure Design prepares the structure preliminary report (and a preliminary foundation site plan, if needed) describing the design features for the structure. The report is sent to the district for review to ensure compliance with the project's geometric requirements. After the district's comments are incorporated, structures design is initiated.

ARTICLE 5 Right-of-Way Submittal

Determine Right-of-Way Requirements

During the project approval process, the right-of-way data sheet was prepared using preliminary maps, assessor's maps, record maps, and property ownership maps. However, substantial changes to right-of-way requirements can occur during the design phase. After geometric design features have been completed, slope catch lines are plotted on the geometric base maps and right-of-way requirements are established according to the minimum offsets described in the [*Highway Design Manual*](#). When determining right-of-way widths, reasonable allowances should be made for possible future design revisions. In addition, easements may be required for maintenance access, drainage, noise barriers, material sites, utilities, construction work areas, etc.

Send Maps to Right-of-Way

After right-of-way requirements are determined, geometric base maps describing the requirements are submitted to right-of-way engineering to provide a basis for the appraisal process.

Prepare Appraisal Maps

The geometric base maps are used to order title reports and prepare appraisal maps. The appraisal maps indicate the sizes of the parcel takes and remainders, and show engineering details that may affect property appraisal values, such as fences, gates, water wells, and driveways. Other map items include potential excess lands (for construction detours, contractor's yards, etc.) and government easements (for improvements on U.S. Forest Service land, etc.).

Certificate of Sufficiency

The completed right-of-way appraisal maps are reviewed by the PE to verify that the designated right-of-way lines are required to construct the project. A Certificate of Sufficiency ([Right of Way Manual](#) Exhibit 6-EX-9) with a Hazardous Materials Disclosure Document – Acquisition form (ENV-0001-A) for the parcels contained in the appraisal report is signed by the project engineer and design senior. See [Chapter 18](#) – Environmental Contamination for further discussion of the Hazardous Materials Disclosure Document – Acquisition form.

Initiate Right-of-Way Appraisals

After appraisal maps are certified and the appraisal process is initiated, the right-of-way unit establishes the fair market value of required parcels, which determines the offers made to parcel owners.

ARTICLE 6 Skeleton Layouts

Circulate Skeleton Layouts

The skeleton layouts consist of geometric base maps showing topography, proposed geometric features, and right-of-way. The layouts are divided into plan-sized sheets (with no overlapping details) and distributed to the functional units for use in developing their portion of the PS&E. Pavement delineation, drainage, planting and irrigation, and other work may be superimposed on the skeleton layouts to produce special-purpose plan sheets.

Typical Cross-Sections

To provide complete information, typical cross-sections are prepared and accompany all skeleton layouts.

Typical cross-sections are based on details provided in the project report and the materials report.

SECTION 3 Final Plans

ARTICLE 1 General

Conduct Detailed Project Design

Skeleton layouts were previously distributed to applicable functional units. They are now utilized to prepare final plans. Quantity calculations, contract specifications, and other elements of detailed design must also be completed at this stage. After the functional units deliver their portions of the PS&E, the PE consolidates the plans and circulates them within the district for review.

Special Considerations

As final plans near completion, it should be confirmed that all special considerations for the project are being resolved. These considerations may be constraints to advertisement of the project. Examples of special consideration are:

- Hazardous waste cleanup.
- Railroad agreements.
- Approval of material and disposal sites.
- Water well abandonment procedures.
- Aesthetics review.
- Transportation management plan.
- Environmental mitigation commitments.

For a comprehensive list of requirements that must be met before a project is advertised, see the [*Ready to List and Construction Contract Award Guide \(RTL Guide\)*](#).

ARTICLE 2 Final Maps to Right-of-Way

Final Right-of-Way Requirements

Right-of-way requirements were submitted after the completion of the geometric base maps, but design refinements may result in changes to these requirements. If necessary, updated maps should be sent to the right-of-way unit so that appraisal maps can be revised to reflect the additional or modified parcels or easements.

Acquisition and Clearance

The right-of-way unit begins the acquisition process for each parcel as soon as the appraisal of that parcel has been completed. When the appraisals of the last additional or modified parcels are completed, the acquisition of those parcels is begun. Clearance of improvements is accomplished by the implementation of a property management plan, which is prepared by the right-of-way unit. Basic elements of the plan include the following:

- Issue 90-day relocation notices to the property owners to vacate their property.
- Initiate and implement sale of buildings and provide necessary monitoring to ensure that clearance is timely.
- Perform demolition and clearance contracts, as necessary.

If required, a relocation assistance plan will be implemented.

Condemnation Procedures

If negotiations with a property owner have been unsuccessful, the condemnation process may be initiated. Condemnation of property through eminent domain is initiated through a resolution of necessity, which is requested from the CTC. (See [Chapter 28](#) – Resolutions of Necessity for details.) Following the CTC’s adoption of the resolution of necessity, Orders of Possessions must be acquired from the courts to provide for possession after 90 days.

ARTICLE 3 Bridge General Plans

Bridge General Plans

The bridge site data submittal and the structures preliminary report are used to prepare the bridge general plans. The plans provide a description of the bridge type, dimensions, aesthetics treatment, and cost estimates. The Headquarters Division of Engineering Services-Structure Design transmits the plans to the district for review before continuing with detailed structure design.

Falsework Approval

The PE should review the general plan falsework openings for conformity to current standards. Nonstandard vertical falsework clearances must be approved by the Headquarters Project Delivery Coordinator. Nonstandard horizontal clearances

require approval from the District Director, with concurrence from the Headquarters Project Delivery Coordinator. If bridge construction involves falsework on local streets or roads, concurrence should be requested from the local agency. For more information on falsework, see the [Highway Design Manual](#), Index 204.8.

Development of Bridge Plans, Specifications, and Estimate

After the PE's concurrence is obtained for the bridge general plan, the development of bridge plans and quantity calculations can begin. Foundation studies are conducted by the Headquarters Division of Engineering Services-Structure Design, in conjunction with Headquarters Division of Engineering Services-Geotechnical Services. The structures foundation report and other information are used to develop the bridge unchecked detail sheets. These details are again reviewed by the district before Structure Design proceeds with the preparation of the bridge PS&E.

ARTICLE 4 The Project Plans

Plans Prepared by Project Engineer

Project plan preparation complies with the standards set forth in the [Plans Preparation Manual](#). Computer-aided design and drafting (CADD) should conform to the standards and procedures contained in the [CADD Users Manual](#).

The PE prepares the majority of the project plans. These usually include the layout sheets, typical cross-sections, profile sheets, construction details, drainage sheets, quantity summary sheets, etc.

Plans Prepared by Functional Units

The following are examples of plans prepared by the functional units:

- Landscape architecture prepares plans for new and replacement planting, irrigation crossovers and systems, electrical service for automatic irrigation systems, environmental mitigation planting, erosion control, etc.
- Traffic prepares plans for pavement delineation, construction area signs, traffic handling (including staging and detours), etc.
- Traffic electrical prepares plans for signal and illumination, power supply, and railroad electrical requirements.
- Utilities prepare plans for relocation of utilities during the construction contract.

ARTICLE 5 Final Quantities

Quantity Calculations

Project cost estimates are continuously updated throughout the project development process. As more information becomes available, specific contract items of work are identified. The quantities of these items are calculated and tabulated on a plan sheet labeled “Summary of Quantities.”

Unit Price Analysis

Project cost estimates should represent the fair and reasonable price the State should expect to pay for each item of work to be performed. Determining appropriate unit prices for individual contract items requires an analysis of recent bid prices for similar projects or an analysis of current labor, equipment, and materials costs. For more information, see [Chapter 20](#) – Project Development Cost Estimates. After final quantities and unit prices are determined, they should be entered into the Basic Engineering Estimating System (BEES).

SECTION 4 Plans, Specifications, and Estimate Submittal

ARTICLE 1 General

Complete Project Design

The PE works with the district office engineer unit to prepare the PS&E package, which is then submitted to the Headquarters Division of Engineering Services-Office Engineer for eventual contract advertising. For greater detail, see the [Ready to List and Construction Contract Award Guide \(RTL Guide\)](#).

Review for Current Standards

Revisions to design standards, standard plans, and standard special provisions are issued with a stated effective date, after which the new or revised standards will be followed. The design standard revisions are issued with a change transmittal memorandum that identifies any revisions that involve special implementation procedures requiring mandatory implementation as late as completion of construction.

In general, revisions to design standards in the [Highway Design Manual \(HDM\)](#), [California Manual on Uniform Traffic Control Devices \(California MUTCD\)](#), [Bridge Manuals](#), [Design Information Bulletins](#), and interim manual changes that may be issued by Caltrans, must be included in the PS&E prior to submittal to Headquarters Division of Engineering Services-Office Engineer. Refer to the [Highway Design Manual](#), Index 82.5, for more information on the effective date for implementing revisions to design standards.

Use of Standard Plans

The standard plans will not cover each and every condition, therefore revisions will occasionally be required in order to fit the given situation. For the policy on the use of non-standard plans, see Section 1. For further information on the process for use of non-standard plans, see the [Ready to List and Construction Contract Award Guide \(RTL Guide\)](#). For bridge items, see the [Bridge Design Details Manual](#) for additional requirements.

Local Agency Review

Local agencies have had opportunities to review and comment on the project throughout the project development process. Their comments should be minimal at the final stage of design. The plans, specifications, and estimate package should be sent to the local agency staff for final review and concurrence. Any appropriate changes should be incorporated. Particular attention should be given to comments from the local agency on construction road closures and on improvements to facilities that will eventually be relinquished to them.

Federal Highway Administration Review

The FHWA may have been involved with various reviews and approvals throughout the life of the project. At the PS&E stage, all projects on the Interstate System (except resurfacing, restoration, and rehabilitation [RRR] projects) require final approval via submittal of a draft standard form (FNM76) to the district office engineer, who forwards it to the Headquarters Office of Federal Resources.

Safety Review

The district safety committee is responsible for reviewing all projects for compliance with safety standards. After reviewing the PS&E package, the committee prepares a safety report or letter. Appropriate reference should be included in the PS&E submittal. See the [Highway Design Manual](#), Index 110.8, for details.

Constructability Review

See [Chapter 8](#) – Overview of Project Development, for information on meeting constructability requirements. The PS&E will reflect the results of the constructability review.

Review for New or Revised Standards

Revisions to design standards are issued from time to time and have a stated effective date. The project will be designed to current standards unless an exception is approved. Refer to the [Highway Design Manual](#), Index 82.5, for details.

Funds Request

All State-funded projects, except “Minor B” projects, have funding approved by vote of the CTC. A project’s funds request should be reviewed by appropriate district units and signed by the Deputy District Director for Program/Project Management. The request is sent to the Headquarters Division of Budgets, which administers the voting process and submits the request to the CTC.

If highway planting is to be installed as a separate contract, it is to be funded from the parent highway project at the time the parent project is voted by the CTC and PS&E scheduled.

ARTICLE 2 Environmental Reevaluation

Environmental Reevaluation Process

The environmental reevaluation process was established to confirm that the conclusions in the final environmental document remain valid. Changes to the project during design, changes in environmental impacts, or changes in environmental laws, may cause impacts not addressed in the original document and may require additional environmental study, documentation, and mitigation. Examples include expanded hazardous waste identified during cleanup operations, additional right-of-way requirements to accommodate for slope stability, unanticipated drainage considerations, or the listing as a federal endangered species of a new species that the project may impact.

The environmental unit reviews the project for environmental compliance to allow the PS&E development process to continue if no significant additional impacts are identified. The reevaluation should be documented in the PS&E package.

Permits

The environmental reevaluation should include a review of the permits required from regulatory agencies. The review should verify that all permits have been issued, that they are still compatible with the proposed construction, and that expiration dates are current.

Mitigation

Impact mitigation measures should be incorporated into the various portions of the PS&E. A review of the PS&E for environmental commitments, hazardous waste remediation, and material sites should also be included in the environmental reevaluation.

ARTICLE 3 Right-of-Way Certification

Request Right-of-Way Certification

Before a construction project can be advertised, the right-of-way unit must certify that the right-of-way has been acquired. All projects require certification, even if no new right-of-way is involved.

The right-of-way certification includes the following topics:

- Status of the Required Right of Way
- Status of Affected Railroad Operating Facilities
- Material/Disposal Site(s)
- Status of Required Utility Relocations
- Right of Way Clearance
- Airspace Agreements
- Compliance with Relocation Assistance Program Requirements
- Cooperative Agreements
- Environmental Mitigation
- Certification

Types of Certification

The three types of right-of-way certification are defined in here. A project can be advertised with a Certification No. 3, but it must be upgraded to a No. 1 or No. 2 three weeks prior to bid opening.

- No. 1 Certification indicates that all property has been acquired.
- No. 2 Certification indicates that all property has been acquired or that orders for possession have been obtained.
- No. 3 or No. 3 Workaround Certification indicates that the right-of-way process is in order, but acquisition or orders for possession will not be completed until a certain date.

ARTICLE 4 Preparation of Contract Documents

Submittal to District Office Engineer

After incorporating comments collected during district circulation, the PE completes the draft PS&E package and forwards it to the district office engineer unit (see [Ready to List and Construction Contract Award Guide \(RTL Guide\)](#)). Some of the items included in the package are listed as follows:

- Cover memorandum.
- RTL certification – a summary of the status of external constraints (permits, agreements, etc.).
- Special provisions (in some districts, the special provisions are compiled by the district office engineer unit).
- Basic Engineering Estimating System cost estimate.
- Right-of-way certification.
- District drafting plan review checklist.
- Copy of request for funds.
- PS&E computer-aided design and drafting submittal form.
- Railroad clauses.
- Copies of documents for information handout.
- Project plans.
- To meet RTL certification, the district-region construction duty senior shall provide to the district office engineer one of the following documents:
 - A verification memorandum stating that final cross-sections were received.
 - A verification memorandum stating that cross-sections are not required under the previous policy criteria.
 - An approved exception memorandum as described under “Exception to Delivery of Cross-sections at Ready to List.”
- Final cross-sections shall be made ready for distribution to potential bidders no later than the project advertisement date.

- The district office engineer unit is responsible for ensuring the completeness, quality, and consistency of all PS&E packages. After combining the structures and district portions of the PS&E, the district office engineer finalizes the package and submits it to Headquarters Division of Engineering Services-Office Engineer for processing. Structures final contract tracings or electronic files are submitted to Office Engineer by the Headquarters Division of Engineering Services-Structure Design upon two-week notice from the district office engineer unit.

Exception to Delivery of Cross-sections at Ready to List

Approval of exceptions to the policy that cross-sections shall be completed by RTL has been delegated to the District Directors. If the District Director is not a registered civil engineer, written delegation to the district or region manager whose responsibilities include the design function is required.

This exception grants the district the ability to deliver cross-sections after the RTL date, but before the advertisement date. This exception does not relieve the district from the responsibility of preparing cross-sections. Projects will not be advertised without final cross-sections available for bidders' use.

The PS&E submittal must indicate when cross-sections will be available in order to certify the RTL milestone. The memorandum shall include the signatures of district construction and district survey representatives indicating their buy-in.

For additional information about cross-sections, refer to the [CADD Users Manual](#).

Submittal to Headquarters Office Engineer

Construction Contract Ready for Advertisement – District Director Delegation

If the authority to approve advertisement has been delegated to a District Director, the district office engineer unit produces a draft contract ready (DCR) for the PE's seal and signature. These projects are listed immediately for advertisement, without verification by Headquarters Division of Engineering Services-Office Engineer. The [*Ready to List and Construction Contract Award Guide \(RTL Guide\)*](#) lists the services that are provided by Office Engineer for these types of projects.

Construction Contract Ready for Advertisement – No District Director Delegation

If the authority to approve advertisement has not been delegated, the district office engineer unit submits the PS&E to Headquarters Division of Engineering Services-Office Engineer.

- Headquarters Division of Engineering Services-Office Engineer performs an errors and omissions review of the PS&E and sends a draft construction contract (DCC) with comments to the district for response.
- After the comments have been resolved by the PE and the PE resends the PS&E to Headquarters Division of Engineering Services-Office Engineer, Office Engineer produces a draft contract ready for the PE's seal and signature.

See the [*Ready to List and Construction Contract Award Guide \(RTL Guide\)*](#) for more detail.